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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/043,171	03/12/1998	STEPHEN MCLAUGHLIN	36-1136	6305

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EXAMINER
AZAD, ABUL K

ART UNIT	PAPER NUMBER
2641	

DATE MAILED: 12/17/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.		Applicant(s)	
Office Action Summary	09/043,171		MCLAUGHLIN ET AL.	
	Examiner		Art Unit	
	ABUL K. AZAD		2641	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 September 2001</u> .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-11 and 15-17</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-11 and 15-17</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____ .

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

DETAILED ACTION

Response to Amendment

1.   This action is in response to the communication filed on October 3, 2001.

2.   Claims 1-11 and 15-17 are pending in this action.

3.   Applicant's arguments with respect to claims 1-11 and 15-17 have been

considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

5.   Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. Claim 15 is unclear and confusing as to how the synthesis

apparatus is arranged to perform the method of claim 1.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States
> before the invention by the applicant for patent, except that an international application filed under the
> treaty defined in section 351(a) shall have the effect under this subsection of a national application
> published under section 122(b) only if the international application designating the United States was
> published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the
> invention by the applicant for patent, except that a patent shall not be deemed filed in the United
> States for the purposes of this subsection based on the filing of an international application filed under
> the treaty defined in section 351(a).

7.   Claims 1-11 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by

Otsuka et al. (US 5,745,651).

As per claim 1, Otsuka teaches, "a method of generating a cyclic sound

waveform corresponding to a sequence of substantially similar cycles," comprising the

steps of:

"(a) generating a cyclical sound waveform sample" (Abstract, generation of

speech waveform);

"(b) generating a successive cyclical sound waveform sample from said cyclical

sound waveform sample and data defining the transformation followed by said cycles in

the temporal vicinity of said cyclical sound waveform sample" (col. 2, lines 13-54);

"(c) designating said successive cyclical sound waveform sample as a cyclical

sound waveform sample and repeating (b)" (col. 2, lines 13-54);

"(d) repeating (c) a plurality of times to generate a sequence of said successive

cyclical sound waveform samples corresponding to a plurality of said cycles" (col. 2,

lines 13-54);

"(e) outputting the samples of said sequence to generate a waveform" (col. 2,

lines 59-64).

As per claim 2, Otsuka teaches, "said waveform comprises voiced speech"

(Abstract).

As per claim 3, Otsuka teaches, "in which said data defining said definition does

so by reference to a predetermined reference waveform sequence" (col. 2, lines 35-44)

As per claim 4, Otsuka teaches, "in which said reference waveform sequence comprises a stored speech waveform" (col. 4, lines 37-67)

As per claim 5, Otsuka teaches, "in which said steps (a) and (b) comprise generating a plurality of values representing said waveform sample values as a point in a multidimensional space in which corresponding portions of successive said cycles are substantially superposed" (col. 8, lines 46-58).

As per claim 6, Otsuka teaches, "in which said data defining said transformation does so by reference to a predetermined reference waveform sequence and transformation approximates . . . successive to the first, on said reference waveform sequence to a corresponding second point on the waveform to be synthesized" (col. 7, line 19 to col. 8, line 65).

As per claim 7, Otsuka teaches, "in which a given successive waveform sample is derived in accordance with data from a pint on said reference waveform sequence at a position within a said cycle which corresponds to that of said given successive waveform sample, and at least one other point on said reference waveform sequence offset in time therefrom" (col. 7, line 19 to col. 8, line 65).

As per claim 8, Otsuka teaches, "in which said step (b) comprises calculating said transformation form a set of stored waveform values" (col. 4, lines 37-67).

As per claim 9 and 11, Otsuka teaches, "in which the initial performance of said step (a) to initial synthesis of said waveform comprises a step of section of an initial value which differs from a previous initial value selected on a previous synthesis of said waveform." (col. 8, lines 26-45).

As per claim 10, Otsuka teaches, "in which said step comprises applying a pseudo random number generation algorithm to select said value" (col. 7, lines 45-54).

As per claim 15, Otsuka teaches, "synthesis apparatus arranged to perform the method of claim 1" (col. 2, lines 13-68).

8.   Claims 1-11 and 15 are alternatively rejected under 35 U.S.C. 102(e) as being anticipated by Nushiguchi et al. (US 5,832,437).

As per claim 1, Nushiguchi teaches, "a method of generating a cyclic sound waveform corresponding to a sequence of substantially similar cycles," comprising the steps of:

"(a) generating a cyclical sound waveform sample" (Abstract);

"(b) generating a successive cyclical sound waveform sample from said cyclical sound waveform sample and data defining the transformation followed by said cycles in the temporal vicinity of said cyclical sound waveform sample" (Abstract);

"(c) designating said successive cyclical sound waveform sample as a cyclical sound waveform sample and repeating (b)" (col. 4, lines 3-42);

"(d) repeating (c) a plurality of times to generate a sequence of said successive cyclical sound waveform samples corresponding to a plurality of said cycles" (col. 4, lines 3-42);

"(e) outputting the samples of said sequence to generate a waveform" (col. 11, lines 1-10).

As per claim 2, Nushiguchi teaches, "said waveform comprises voiced speech" (Abstract).

As per claim 3, Nushiguchi teaches, "in which said data defining said definition does so by reference to a predetermined reference waveform sequence" (Abstract)

As per claim 4, Nushiguchi teaches, "in which said reference waveform sequence comprises a stored speech waveform" (col. 12, lines 1-6; signal recording/reproduction)

As per claim 5, Nushiguchi teaches, "in which said steps (a) and (b) comprise generating a plurality of values representing said waveform sample values as a point in a multidimensional space in which corresponding portions of successive said cycles are substantially superposed" (col. 4, llines 13-19).

As per claim 6, Nushiguchi teaches, "in which said data defining said transformation does so by reference to a predetermined reference waveform sequence and transformation approximates . . . successive to the first, on said reference waveform sequence to a corresponding second point on the waveform to be synthesized" (col. 11, lines 15-61).

As per claim 7, Nushiguchi teaches, "in which a given successive waveform sample is derived in accordance with data from a pint on said reference waveform sequence at a position within a said cycle which corresponds to that of said given successive waveform sample, and at least one other point on said reference waveform sequence offset in time therefrom" (col. 5, lines 24-37).

As per claim 8, Nushiguchi teaches, "in which said step (b) comprises calculating said transformation form a set of stored waveform values" (col. 12, lines 1-6).

As per claim 9 and 11, Nushiguchi teaches, "in which the initial performance of said step (a) to initial synthesis of said waveform comprises a step of section of an initial

value which differs from a previous initial value selected on a previous synthesis of said

waveform." (col. 5, lines 24-37).

As per claim 10, Nushiguchi teaches, "in which said step comprises applying a

pseudo random number generation algorithm to select said value" (col. 5, lines 12-21).

As per claim 15, Nushiguchi teaches, "synthesis apparatus arranged to perform

the method of claim 1" (col. 3, lines 32-35).

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10.   Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Otsuka et al. (US 5,745,651) in view of Kleijn et al. (Speech Coding and

Synthesis).

As per claim 16, Otsuka teaches, "a method of generating a synthetic voiced

waveform," said method comprising:

"storing data defining n-dimensional state space representations of voiced

speech signals, in which successive voiced speech pitch pulse cycles are

superimposed to provide a model of voiced speech dynamics" (col. 4, line 24 to col. 5,

line 4);

"selecting a synthesized waveform starting point in said n-dimensional state space representation for a predetermined voiced speech waveform that is offset from said stored data by an offset vector" (col. 7, line 35 to col. 8, line 58);

"selecting successive further synthesized waveform points in said n-dimensional state space representation for said predetermined voiced speech waveform that are also respectively offset from said stored data in dependence jointly upon the preceding point in the synthesized sequence nearest other stored points in state sequence space and an offset vector therefrom" (col. 7, line 35 to col. 8, line 58);

"repeating (b) and (c) for plural voiced speech cycles and outputting the resulting sequence of thus synthesized waveform points to generate a voiced speech waveform" (col. 7, line 35 to col. 8, line 58).

Otsuka does not teach that n being an integer having a value at least three. However, Kleijn teaches the above limitation (Pages 584-586). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide Otsuka with N=3 as taught by Kleijn because Klejin teaches that an N=3 deterministic system can reproduce a naturally sounding voiced speech waveform.

As per claim 17, it has similar limitation as claim 16, so that claim 17 is also rejected for the same reasons.

Conclusion

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Abul K. Azad** whose telephone number is **(703) 305-3838.**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **William R. Korzuch**, can be reached at **(703) 305-6137.**

Any response to this action should be mailed to:

Commissioner for Patents

Washington, D.C. 20231
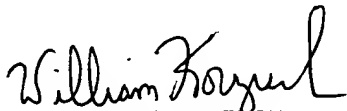
Or faxed to:

(703) 872-9314

(For informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is **(703) 305-4700.**

Abul K. Azad

December 12, 2001

WILLIAM KORZUCH

SUPERVISORY PATENT EXAMINER

TECHNOLOGY CENTER 2800